PRIOR RECLAMATION INSPECTION REPORT
AND
RECOMMENDATION FOR RELEASE OR PERMIT REQUIREMENT

United Nuclear Corporation - Anna Lee Mine

Submitted in Partial Fulfillment of New Mexico Mining Act
Section 69-36-7 U, Prior Reclamation
Protection of Water resources

New Mexico Energy, Minerals and Natural Resources Department
Mining and Minerals Division
Mining Act Reclamation Bureau

August 3, 1995

Introduction

The purpose of this study was to determine if reclamation measures at United Nuclear Corporation's Anna Lee Mine satisfy the requirements of the New Mexico Mining Act and the substantive requirements for reclamation pursuant to the New Mexico Mining Act Rules.

The Anna Lee Mine prior reclamation site is located approximately 22 miles northwest of the City of Grants, New Mexico. The entire site, according to United Nuclear, consists of the outlined portions of Sections 27 and 28 of T14N, R9W delineated in Appendix A (Section 34 is being requested for prior reclamation as the Sandstone and John Bill Mines). Of Sections 27 and 28, only a 75 foot by 60 foot (one tenth acre) where the Anna Lee Head Frame existed falls under the Act. The rest of the area is being reclaimed by the Nuclear Regulatory Commission-Ambrosia Lake Tailings Dam Remediation Project and does not fall under the New Mexico Mining Act. United Nuclear, however, has asked for release of the entire mine site from further requirements of the Act.

The Anna Lee Mine lies within a broad, regional valley eroded in the Mancos Shale. Figure 2 is a statagraphic column depicting the sequence of the underlying formations. Commercial grade uranium was first discovered in the upper Westwater Canyon Sandstone Member by the Strategic Minerals Section of Phillips Petroleum Company in early 1956. Subsequently, nearly 300 exploration holes were drilled to an average depth of approximately 750 feet. The existence of an ore body of about one million tons was established and sinking of the Anna Lee Mine Shaft commenced in 1957. The shaft had two mining levels, a main level at a depth of 660 feet and a sub-level at 720 feet. The underground workings span the section in an east-west direction, and at their widest point, expose part of the Westwater Canyon Sandstone Member for nearly 1000 feet in a north-south direction. The Anna Lee ore deposit consisted of one large pod (the main ore body) and 20 to 30 smaller, parallel, or satellite pods. The main ore body extended from the west section line to a point within 500 feet of the west section line. At the time the main Anna Lee ore body was first opened by mine workings, the level of water saturation coincided with the top of the ore at a point a few hundred feet northwest of the shaft. West of that point, except a few small bodies of perched water, the ore was dry (Kelly, 1963). There are no surface water features in the area. The area drains into an ephemeral tributary of the Arroyo del Puerto. Reclamation with respect to protection of surface and ground water is addressed in a separate report.

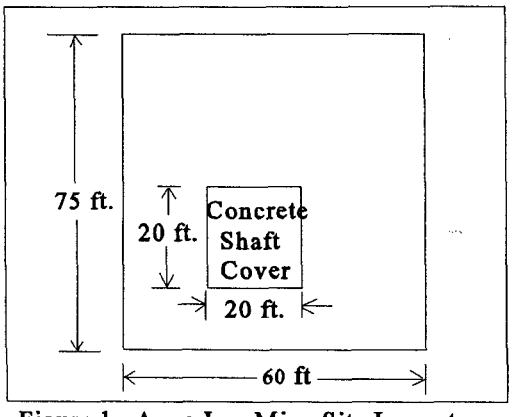


Figure 1. Anna Lee Mine Site Layout

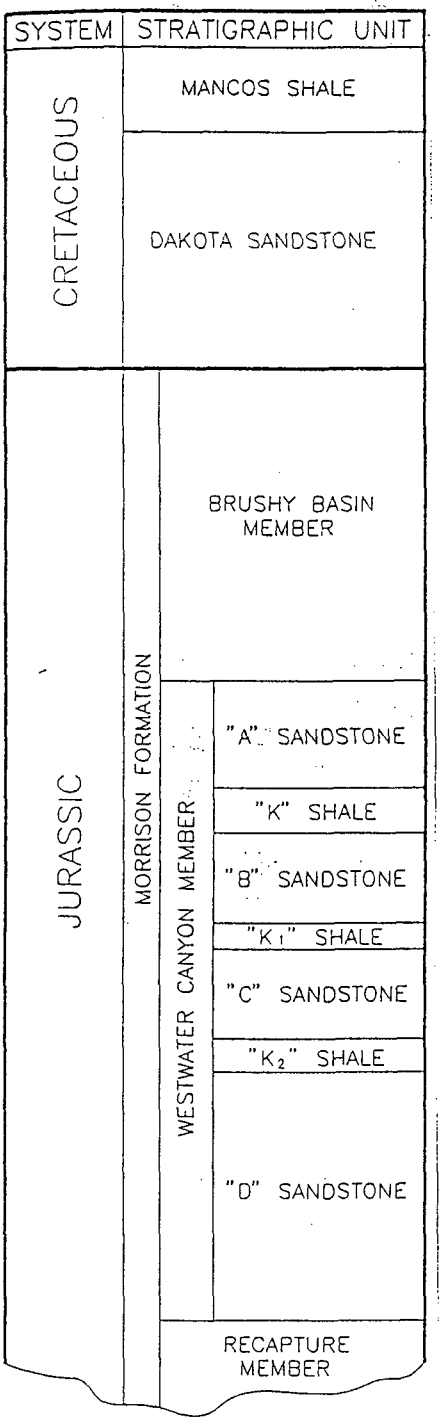


Figure 2. Stratigraphic column of underlying formations (from Kelly, 1963)

Inspection Procedures

Prior reclamation at the Anna Lee Mine was inspected July 13, 1995. Mr. Ed Morales represented United Nuclear Corporation and Mr. Joe DeAguero, Mr. Robert Young and Ms. Tacy Harling represented the New Mexico Mining and Minerals Division. There had been very little precipitation since last fall and surrounding vegetation showed signs of drought stress. The inspection of the Anna Lee Mine consisted of inspection of the general condition of the reclaimed mine site, measurement of soil depth, discussion with the operator of mining and reclamation operations performed at site and photo documentation of vegetation cover, production and diversity. No written information was submitted by the operator.

Results and Discussion

A barbed wire fence surrounded the site. All structures, trash or junk had been removed from the site. There were no piles or accumulations of toxic or waste material on the site. There were no erosion features. Photos documenting vegetation and general condition of the site are in Appendix B. The photos are described in Table I. The mine shaft had been backfilled with nontoxic mine waste material and capped with a Concrete Slab approximately 20 foot square and 4 feet thick (See Figure 3). The concrete cap was not covered with soil. Three feet of soil had been removed from the area around the site. The soil depth within the site was, therefore, at least three feet deep. The area had been seeded last fall but vegetation was very sparse. Crested Wheatgrass and some perennials were the only species identified. Crested wheat was a constituent in the seed mix.

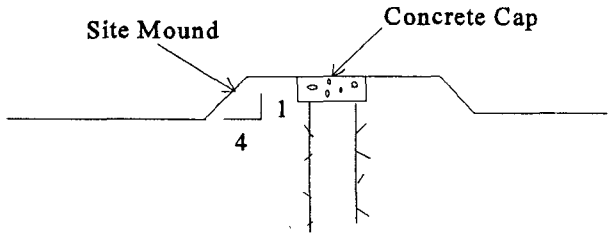


Figure 3. Cross Section of Site

TABLE I
Description of Photo Documentation

Photo	Taken From	Photo Object
1	East, 20 yards from site	Site Mound
2	South, 20 yards from site	Site Mound
3&4	Southeast, from edge of site	Top of site with shaft concrete cap
5&6	East	Side Slope of Site

Conclusions and Recommendations

With the exception of the maintenance items listed below, further reclamation measures are not required at United Nuclear's Anna Lee Mine to satisfy the requirements of the New Mexico Mining Act. It is recommended, therefore, that the Anna Lee Mine prior reclamation site, operated by the United Nuclear Corporation, be released from further requirements of the New Mexico Mining Act contingent on performance of the following maintenance items before December 31, 1995:

1. The concrete slab must be covered by a minimum of one foot of top soil or suitable material.

2. The area must be reseeded with a mixture of native species appropriate for the area. MMD staff will be happy to advise United Nuclear regarding an appropriate seed mixture.

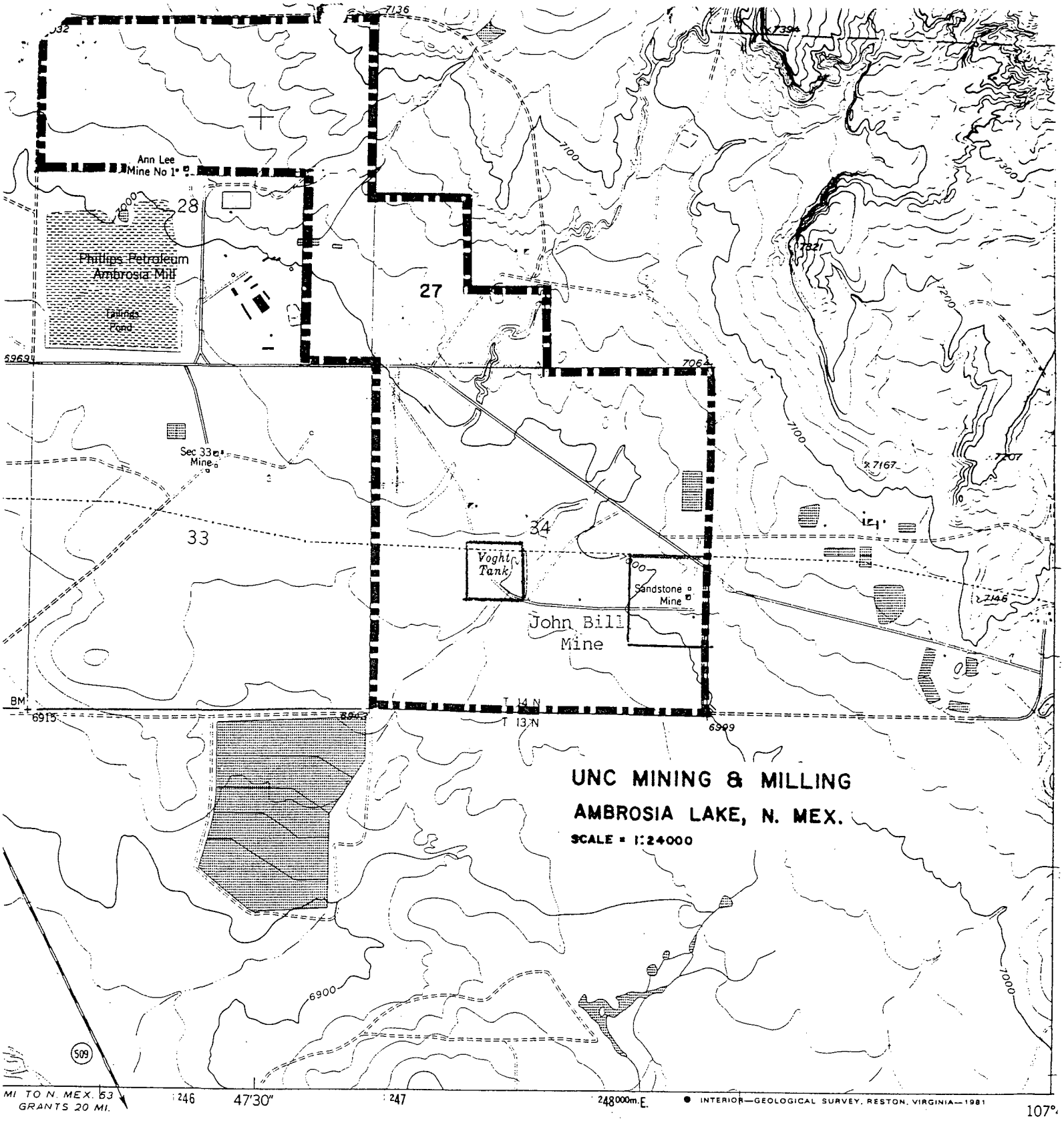
References

Kelly, Vincent C. 1963, Geology and Technology of the Grants Uranium Region, Memoir 15, New Mexico Bureau of Mines and Minerals Resources, Socorro, New Mexico.

Morales, E. M. (Ed) 1995, Operations Superintendent and Radiation Safety Officer, United Nuclear Corporation, Personnal Communication.

Appendix A

Map of Prior Reclamation Area



1 MILE

6000 7000 FEET

1 KILOMETER

ROAD CLASSIFICATION

Medium-duty ——— Light-duty ———

Unimproved dirt - - - - - -

State Route

NEW MEXICO

QUADRANGLE LOCATION

AMBROSIA LAKE, N. MEX.

N3522.5—W10745/7.5

TANDARDS
OR RESTON, VIRGINIA 22092

Revisions shown in purple compiled from aerial photographs

Appendix B

Photo Documentation

Photo 1. Site Mound from east, 20 yards from site

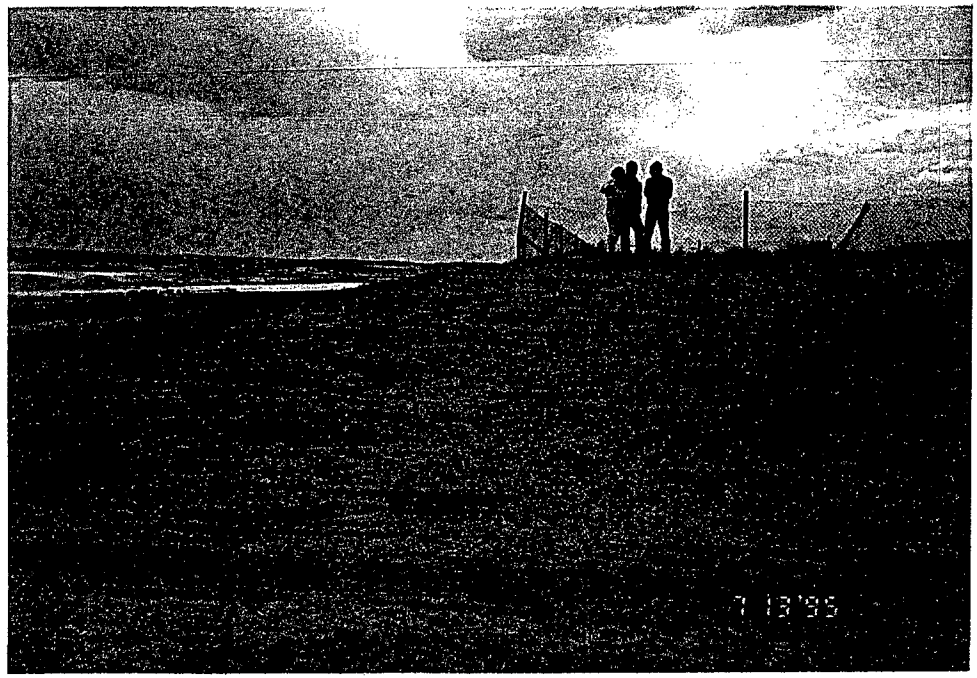
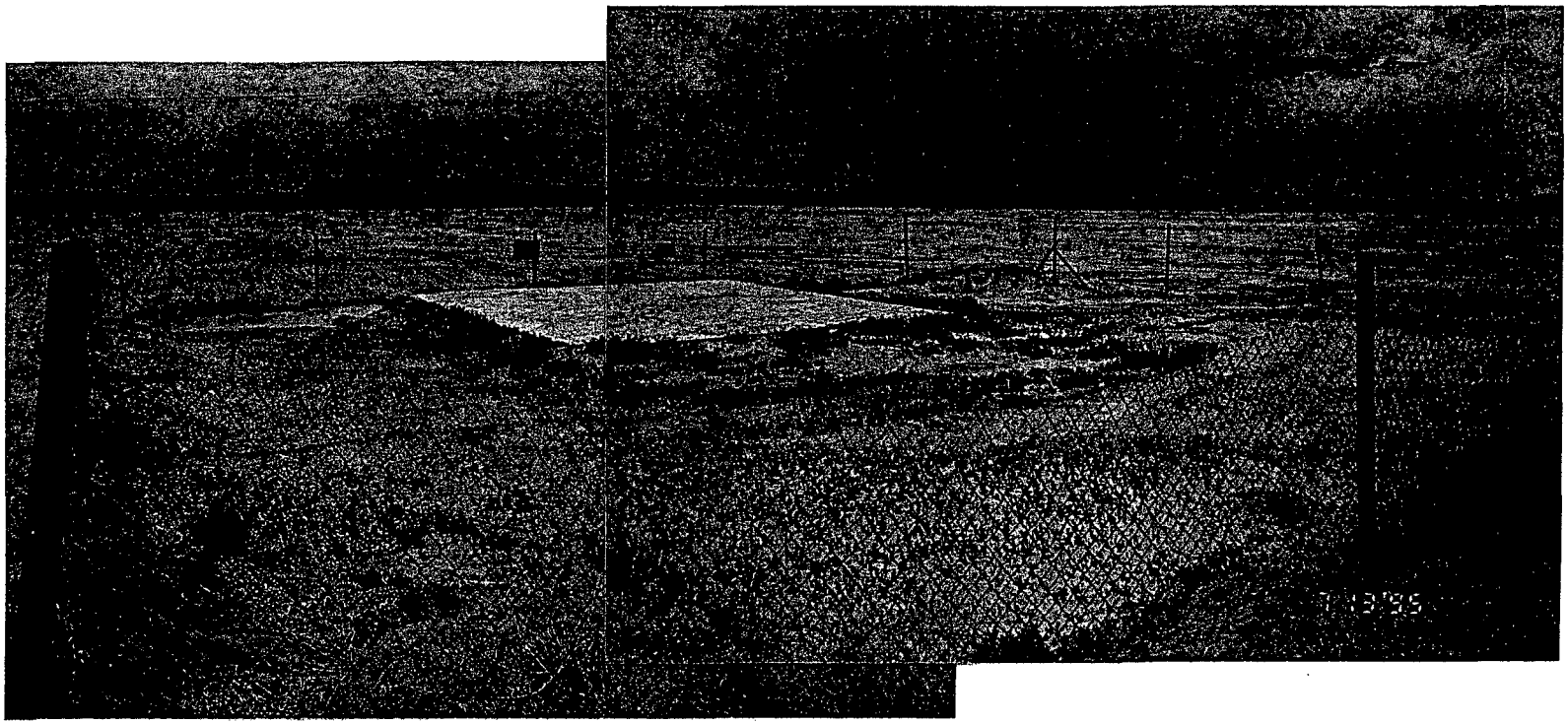


Photo 2. Site Mound from south, 20 yards from site



Photos 3&4. Top of site with concrete cap from southeast

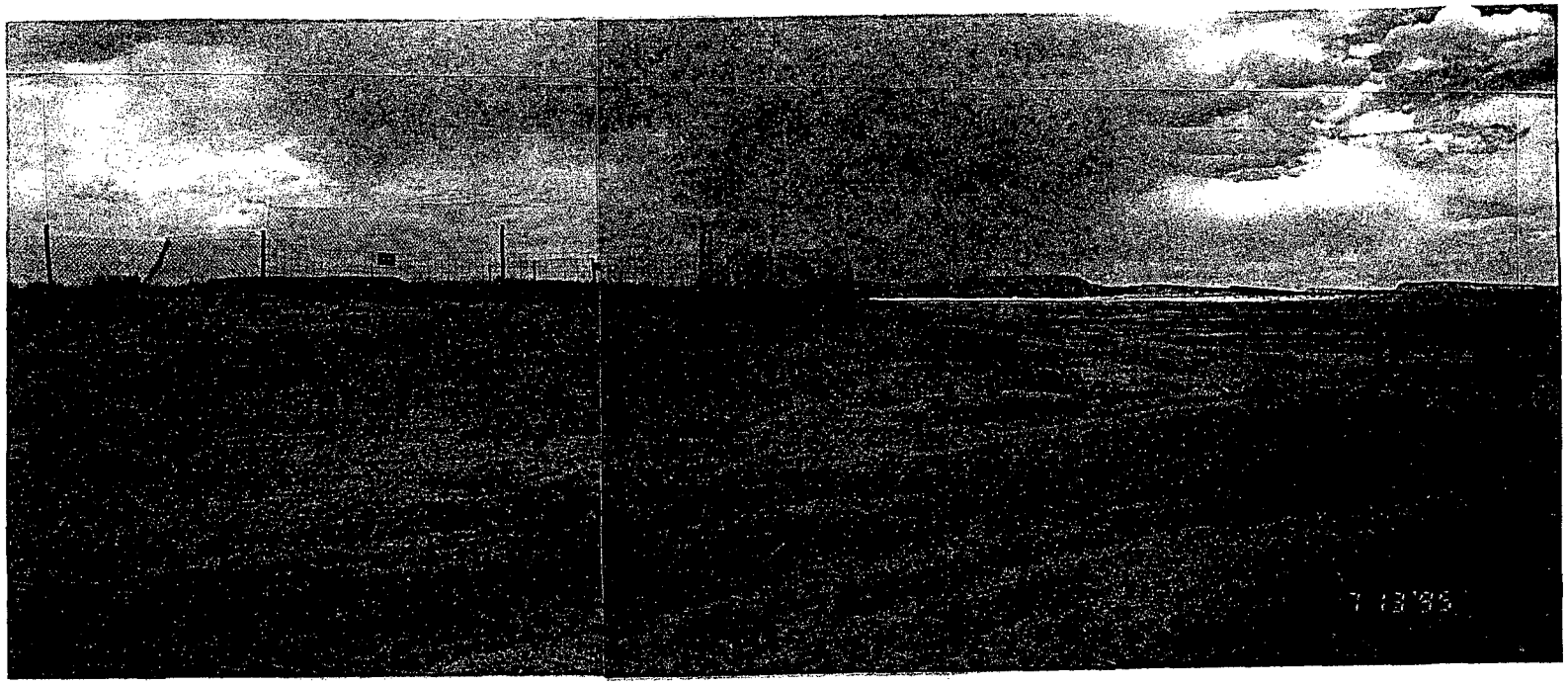


Figure 5&6. Side slope of site from east